

WHAT IS CLAIMED:

1. A circuit, comprising:

a correction circuit coupled to receive a first estimate signal, a second estimate signal, a first input signal and a second input signal, the correction circuit receiving the first and second input signals from an external source along a respective signal path of a plurality of signal paths, the correction circuit producing a first symbol estimate in response to the first and second estimate signals and the first and second input signals, the correction circuit producing a second symbol estimate in response to the first and second estimate signals and the first and second input signals; and

a combining circuit coupled to receive a plurality of first symbol estimates including the first symbol estimate and coupled to receive a plurality of second symbol estimates including the second symbol estimate, the combining circuit producing a first symbol signal in response to the plurality of first symbol estimates and producing a second symbol signal in response to the plurality of second symbol estimates.

2. A circuit as in claim 1, further comprising an input circuit coupled to receive a first plurality of signals during a first time from the external source and coupled to receive a second plurality of signals during a second time from the external source, the input circuit receiving each of the first and second plurality of signals along respective first and second paths, the input circuit producing the first input signal and the second input signal from the respective first and second plurality of signals.

3. A circuit as in claim 1, further comprising an input circuit coupled to receive a plurality of signals from an external source along a plurality of signal paths, the input circuit producing a plurality of input signals including the first input signal and the second input signal corresponding to a respective signal path of the plurality of signal paths.

4. A circuit as in claim 1, wherein the correction circuit and the combining circuit are formed on a single integrated circuit.

5. A circuit as in claim 1, wherein each of the first and second symbol signals include at least one of a pilot symbol, a transmit power control symbol, a rate information symbol and a data symbol.
6. A circuit as in claim 1, wherein the first time corresponds to a transmission time of one of the first and second symbol signals and wherein the second time corresponds to a transmission time of the other of the first and second symbol signals.
7. A circuit as in claim 1, wherein a total path diversity of each of the first and second symbol signals is at least twice a number of transmitting antennas.
8. A circuit as in claim 1, wherein the first input signal is transmitted by a first antenna and a second antenna and wherein the second input signal is transmitted by the first antenna and the second antenna.
9. A circuit as in claim 8, wherein the first and the second input signal are wideband code division multiple access signals.
10. A circuit as in claim 9, wherein a total path diversity of each of the first and second symbol signals is at least twice a number of transmitting antennas.
11. A method of processing signals in a communication circuit, comprising the steps of:
 - receiving a plurality of first signals during a first time, each first signal corresponding to a respective signal path;
 - receiving a plurality of second signals during a second time;
 - estimating a first Rayleigh fading parameter;
 - estimating a second Rayleigh fading parameter;
 - producing a first symbol signal in response to said plurality of first signals, said plurality of second signals and said first and second Rayleigh fading parameters; and

producing a second symbol signal in response to said plurality of first signals, said plurality of second signals and said first and second Rayleigh fading parameters.

12. A method of processing signals as in claim 11, further comprising the steps of:
determining a conjugate of said each first signal;
determining a conjugate of each second signal of said plurality of second signals;
determining a conjugate of each said first Rayleigh fading parameter; and
determining a conjugate of each said second Rayleigh fading parameter.

13. A method of processing signals as in claim 12, further comprising the steps of:
determining an approximate said first symbol by adding a product of said each first signal and each respective said conjugate of each said first Rayleigh fading parameter to a product of said conjugate of said each second signal and each respective said second Rayleigh fading parameter; and
determining an approximate said second symbol by adding a product of a complement of said conjugate of said each first signal and each respective second Rayleigh fading parameter to a product of said each second signal and each respective said conjugate of each said second Rayleigh fading parameter.

14. A mobile communication system, comprising:
a mobile antenna arranged to receive a plurality of signals from an external source along a respective plurality of signal paths;
an input circuit coupled to receive the plurality of signals from the antenna, the input circuit producing a plurality of input signals including a first input signal and a second input signal corresponding to respective signal paths of the plurality of signal paths; and
a correction circuit coupled to receive a first estimate signal, a second estimate signal and the first and second input signals, the correction circuit producing a first symbol estimate in response to the first and second estimate signals and the first and second input signals, the correction circuit producing a second symbol estimate in response to the first and second estimate signals and the first and second input signals.

15. A mobile communication system as in claim 14, further comprising a combining circuit coupled to receive a plurality of first symbol estimates including the first symbol estimate and coupled to receive a plurality of second symbol estimates including the second symbol estimate, the combining circuit producing a first symbol signal in response to the plurality of first symbol estimates and producing a second symbol signal in response to the plurality of second symbol estimates.
16. A mobile communication system as in claim 15, wherein the input circuit, the correction circuit and the combining circuit are formed on a single integrated circuit.
17. A mobile communication system as in claim 15, wherein each of the first and second symbol signals include at least one of a pilot symbol, a transmit power control symbol, a rate information symbol and a data symbol.
18. A mobile communication system as in claim 14, wherein each of the first and second estimate signals is a Rayleigh fading parameter estimate.
19. A mobile communication system as in claim 14, wherein a total path diversity of each of the first and second symbol signals is at least twice a number of transmitting antennas.
20. A mobile communication system as in claim 14, wherein each of the first and second input signals is transmitted by a first antenna and a second antenna.
21. A mobile communication system as in claim 20, wherein each of the first and second input signals is a wideband code division multiple access signal.
22. A mobile communication system as in claim 21, wherein a total path diversity of each of the first and second symbol signals is at least twice a number of transmitting antennas.